Cruise: EX0839
Ship: M/V Explorer of the Seas
Dates: December 1 - 11, 2008
Chief Scientist: not applicable
Equipment: Surface samples collected.
Total number of stations: VOS Underway Cruise

Sample Collection

The discrete samples were collected by Nina Keul from a metering ball valve next to the underway pCO2 instrument. The underway pCO2 instrument was located in the bow thruster space next to the TSG and a short distance from the inlet pump. The sea water takes less than 10 seconds to travel from the inlet to the instruments. The TSG temperature is believed to be no more than 0.15 degrees C warmer than in-situ SST. The date and time listed in the data file are UTC when each sample bottle was collected.

DIC:
17 locations, 20 samples each 500-ml, 2 sets of duplicate samples
Sample_ID#: 73 - 92
PI: Dr. Rik Wanninkhof
Analyzed by: Esa Peltola

TAlk:
17 locations, 20 samples each 500-ml, 2 sets of duplicate samples
Sample_ID#: 49 - 69
PI: Dr. John Morse
Analyzed by: Luz Romero

Sample Analysis

DIC:
Analysis date: February 10, 2009
Coulometer used: AOML2
Blank range: 29.7 - 35 counts/min
CRM # used and assigned value (include both DIC and salinity): Batch 80, c: 2006.5 umol/kg,S: 33.357
CRM value measured: AOML 2: offset 4.2 umol/kg (2010.7 umol/kg)

Average run time, minimum run time, maximum run time: 17 min, 9 min, 20 min
Reproducibility: (# samples and average difference): 2 sets of duplicate samples, average difference 2.8 umol/kg
CRM, salinity and HgCl2 correction applied: Salinity correction was applied using TSG salinity; CRM and HgCl2 volume correction was applied
Remarks-

The volume correction was applied due to added HgCl2 (Measured DIC*1.00037).
The first CRM of each cell was used for a CRM correction.
There was a power spike in the building during sample runs 89 and 90. The DIC values for these samples were calculated using the latest coulometer counts. The samples were marked with QC 3.
The DIC value of sample 78 was too low and it was marked with QC 4. Either the sample bottle had leaked or the analyzer had an acid delivery problem.

Comments

The GPS transducer and the thermosalinographs (TSG) were logged by a computer system installed by NOAA and the University of Miami. These instruments are maintained by a technician from the University of Miami's Marine Technology Group (http://www.marinetechnologygroup.org/) . The data from the TSGs, Seabird SBE-21 and SBE-45, are archived by the Ship of Opportunity Program at AOML (http://www.aoml.noaa.gov/phod/tsg/soop/index.php).

The latitude, longitude, temperature and salinity reported with the DIC and TAlk measurements were taken from the raw TSG data file. The merging of the discrete measurements with the TSG data was done on the basis of date and time. The TSG values are provided for reference; no post-cruise assurance of accuracy has been done to this data.

The Sample_ID is the sample bottle number for the discrete samples.